TABLE 19

Companies with domestic R&D paid for by the company and others and performed by the company in the software products and embedded software technology focus area, by industry and company size: 2019

(Millions of U.S. dollars and number)

| | | | | | ed software R&D | | | | | | | |
|--|-------------------------|------------------------------------|------------------|----------------------|-------------------------|-------------------|---|--------------------|-----------------------|-------------|--------------------|--------------------------|
| | | | | | | | | Paid for by others | | | | |
| Industry and company size All industries | | Domes | tic R&D | | Paid for by the company | | | Total | | Federally | y funded | |
| | NAICS code | Companies ^a (number) | Amount | Companie (number) | | Compani (numbe | | Amount | Companies (number) | b Amount | Companies (number) | S ^b Amount |
| | 21-23, 31-33, 42- 81 | 28,270 | 492,956 | 12,450 | i 200,859 | 11,640 | i | 189,553 | 1,440 i | 11,306 | 710 i | i 5,089 i |
| Manufacturing industries | 31-33 | 15,180 | 285,674 | 4,410 | i 41,105 | 4,230 | i | 36,281 | 500 i | 4,824 i | 140 i | i 2,995 i |
| Food | 311 | 870 | 4,180 | 80 | i 45 | i 80 | i | 41 i | 10 | 4 | 0 | 0 |
| Beverage and tobacco products | 312 | 350 | 1,082 | 20 | 1 | 20 | | 1 | 0 | 0 | 0 | 0 |
| Textile, apparel, and leather products | 313-16 | 240 | 904 | 50 | i 60 | i 50 | i | 60 i | 0 | 0 | 0 | 0 |
| Wood products | 321 | 80 | 186 | 20 | i 8 | i 20 | i | 8 i | 0 | 0 | 0 | 0 |
| Paper | 322 | 90 | 1,064 | 20 | i 12 | i 20 | i | 12 i | 0 | 0 | 0 | 0 |
| Printing and related support activities | 323 | 200 | 420 | i 70 | i 78 | i 70 | i | 78 i | 0 | 0 | 0 | 0 |
| Petroleum and coal products | 324 | 80 | 1,306 | 10 | 10 | 10 | | 10 | 0 | 0 | 0 | 0 |
| Chemicals | 325 | 2,330 | 97,063 | 200 | i 1,572 | 190 | i | 1,538 | 20 | 34 | 10 | 2 |
| Basic chemicals | 3251 | 240 | 2,360 | 20 | 21 | 20 | | 16 | 10 | 5 | 0 | 0 |
| Resin, synthetic rubber, and artificial synthetic fibers and filaments | 3252 | 180 | 1,172 | 10 | 8 | i 10 | | 8 i | 0 | 0 | 0 | 0 |
| Pesticide, fertilizer, and other agricultural chemicals | 3253 | 150 | 1,822 - 1,846 | 20 | i 973 | 20 | i | 955 | 10 | 17 | 0 | 0 |
| Pharmaceuticals and medicines | 3254 | 1,060 | 87,619 | 90 | 470 | 90 | | 467 | 10 | 4 | 10 | 2 |
| Soap, cleaning compound, and toilet preparation | 3256 | 270 | 2,760 | 10 | 17 | 10 | | 9 i | 10 | 8 | 0 | 0 |
| Paint, coating, adhesive, and other chemicals | 3255, 3259 | 460 | 1,305 - 1,333 | 70 | i 84 | 70 | i | 84 | 10 | * i | 10 | * i |
| Plastics and rubber products | 326 | 790 | 2,856 | 80 | i 75 | 80 | i | 75 | 0 | 0 | 0 | 0 |
| Nonmetallic mineral products | 327 | 170 | 1,508 | i 20 | i 31 | i 20 | i | 31 i | 0 | 0 | 0 | 0 |
| Primary metals | 331 | 200 | 665 | 40 | i 30 | i 40 | i | 30 i | 0 | 0 | 0 | 0 |
| Fabricated metal products | 332 | 1,840 | 2,885 | 390 | i 311 | 360 | i | 284 | 30 | 27 i | 0 | 0 |
| Machinery | 333 | 2,240 | 15,184 | 810 | i 1,631 | 770 | i | 1,552 i | 60 | 80 | 10 | 34 |
| Agricultural implement | 33311 | 190 | 1,921 | 60 | i 249 | 60 | i | 249 | 10 | 1 | 10 | * |
| Semiconductor machinery | 333242 | 80 | 4,459 | 60 | 365 | i 40 | | 348 i | 30 | 17 | 0 | 0 |
| Engine, turbine, and power transmission equipment | 3336 | 110 | 1,301 | 50 | i 133 | 50 | i | 99 i | 10 | 34 | 10 | 31 |
| Other machinery | other 333 | 1,880 | 7,503 | 650 | i 884 | 640 | i | 856 i | 20 | 28 | 10 i | i 3 i |
| Computer and electronic products | 334 | 2,280 | 86,729 | 1,380 | i 29,799 | 1,320 | i | 25,864 | 190 i | 3,935 i | 40 | 2,693 i |
| Communications equipment | 3342 | 300 | 12,595 | | i 8,231 | i 240 | i | 8,168 i | 10 | 63 | 10 | 37 |

TABLE 19

Companies with domestic R&D paid for by the company and others and performed by the company in the software products and embedded software technology focus area, by industry and company size: 2019

(Millions of U.S. dollars and number)

| Industry and company size | | | | | | | bedded software R&D | | | | | | | | | |
|---|-------------------|--------------------|---|-------------------|------------------|---|---------------------|-------------------------|---|-------------------|---------------------|---|------------|------------------|---|------------|
| | NAICS code | | | | | | | | | | | | Paid for I | y others | | |
| | | Domestic R&D | | | Total | | | Paid for by the company | | | Total | | | Federally funde | | funded |
| | | Compani (number | | Amount | Compar (numbe | | Amount | Companio (number | | Amount | Companie (number | | Amount | Compan (numbe | | Amount |
| Semiconductor and other electronic components | | 640 | | 35,183 | i 190 | i | 8,407 | 170 | i | 8,088 | 60 | i | 320 | 10 | i | 55 |
| Navigational, measuring, electromedical, and control instruments | 3345 | 1,140 | | 17,562 | 760 | i | 7,037 | i 730 | i | 3,544 | 120 | i | 3,493 i | 30 | | 2,583 |
| Electromedical, electrotherapeutic, and irradiation apparatus | 334510, 334517 | 230 | | 3,342 | 130 | i | 512 | i 130 | i | 419 | i 30 | i | 94 | 10 | | 1 |
| Search, detection, navigation, guidance, aeronautical, and nautical system and instrument | 334511 | 190 | | 9,662 | 140 | i | 5,192 | i 130 | i | 1,853 | 30 | | 3,339 i | 30 | | 2,580 |
| Other measuring and controlling device | other 3345 | 740 | | 4,558 | 500 | i | 1,332 | 490 | i | 1,272 | 60 | i | 60 | 10 | | 2 |
| Other computer and electronic products | other 334 | 220 | | 21,388 | 200 | i | 6,124 | 190 | i | 6,065 | 10 | | 59 | 10 | | 18 |
| Electrical equipment, appliances, and components | 335 | 900 | | 5,263 | 550 | i | 830 | 540 | i | 735 | 30 | i | 96 | 10 | i | 1 |
| Transportation equipment | 336 | 1,090 | | 45,375 | 260 | i | 3,881 | i 250 | i | 3,262 | i 130 | | 619 i | 90 | i | 265 |
| Motor vehicles, bodies, trailers, and parts | 3361-63 | 540 | | 24,117 | 180 | i | 2,076 | 170 | i | 1,834 | 40 | i | 242 i | 10 | | 3 |
| Aerospace products and parts | 3364 | 380 | i | 18,358 | i 60 | | 1,658 | i 60 | | 1,282 | i 90 | | 376 i | 90 | i | 261 |
| Aircraft, aircraft engine, and aircraft parts | 336411-13 | 200 | | 16,891 | i 60 | | 1,550 | i 50 | | 1,268 | i 20 | | 282 | 10 | | 170 |
| Guided missile, space vehicle, and related parts | 336414-15, 336419 | 190 | i | 1,467 | 10 | | 108 | i 10 | | 14 | 80 | | 95 i | 80 | i | 90 |
| Military armored vehicle, tank, and tank component | 336992 | 30 | | 35 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| Other transportation | other 336 | 150 | | 2,865 | 30 | | 147 | i 30 | | 146 | i 10 | | 1 | 10 | | 1 |
| Furniture and related products | 337 | 190 | | 409 | 50 | i | 66 | i 50 | i | 66 | i 0 | | 0 | 0 | | 0 |
| Miscellaneous | 339 | 1,310 | | 18,596 | 460 | i | 2,665 | 440 | i | 2,635 | 70 | i | 30 | 10 | | * |
| Medical equipment and supplies | 3391 | 790 | | 16,014 | 370 | i | 2,004 | 350 | i | 1,974 | 70 | i | 30 | 10 | | * |
| Other miscellaneous manufacturing | 3399 | 520 | | 2,582 | 90 | | 661 | 90 | | 661 | 0 | | 0 | 0 | | 0 |
| Nonmanufacturing industries | 21-23, 42-81 | 13,100 | | 207,283 | 8,050 | i | 159,754 | 7,420 | i | 153,272 | 940 | i | 6,482 | 570 | i | 2,094 |
| Mining, quarrying, oil and gas extraction, and support activities | 21 | 160 | | 2,717 | 30 | i | 951 | 30 | i | 943 | 10 | | 8 | 10 | | * |
| Utilities | 22 | 40 | | 275 | 20 | | 45 | 20 | | 45 | 0 | | 0 | 0 | | 0 |
| Wholesale trade | 42 | 1,560 | | 1,191 | 290 | i | 70 | i 280 | i | 7 - 71 | i 10 | i | 0 - 62 i | 0 | | 0 |
| Electronic shopping and electronic auctions | 454111-12 | 60 | | 3,131 - 15,818 | i 50 | i | 1,298 - 15,375 | i 50 | i | 1,293 - 15,375 | i 10 | | 0 - 61 | 0 | | 0 |
| Transportation and warehousing | 48-49 | 130 | | 9,890 | i 50 | | 8,194 | i 50 | | 8,194 | i 0 | | 0 | 0 | | 0 |
| Information | 51 | 3,090 | | 110,227 | 2,830 | | 102,561 | 2,760 | | 101,780 | 130 | | 781 | 10 | | 10 - 31 |

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(Millions of U.S. dollars and number)

| Industry and company size | | | | Software products and embedded software R&D | | | | | | | | |
|---|---|---------------------------------|-------------------|---|-----------------|-----------------------|--------------------------|------------------------------------|----------|-----------------------|-------------|--|
| | | | | | | | | | Paid for | by others | | |
| | NAICS code | Domes | tic R&D | | Total | Paid for by | y the company | Total | | Federally | / funded | |
| | | Companies ^a (number) | Amount | Companie (number) | | Companies (number) | s ^b Amount | Companies ^t (number) | Amount | Companies (number) | b Amount | |
| Publishing | 511 | 1,080 | 33,019 | 1,020 | i 29,191 | 980 | i 28,813 | 70 i | 378 | 10 | 7 | |
| Newspaper, periodical, book, and directory publishers | 5111 | 40 | 61 | 10 | 16 | 10 | 16 | 0 | 0 | 0 | 0 | |
| Software publishers | 5112 | 1,040 | 32,958 | 1,010 | i 29,175 | 970 | i 28,797 | 70 i | 378 | 10 | 7 | |
| Telecommunications | 517 | 210 | 3,733 | 120 | i 2,921 | i 120 | i 2,916 i | 10 | 6 | 10 | * | |
| Data processing, hosting, and related services | 518 | 1,480 | 30,558 | 1,430 | 28,571 | 1,390 | 28,305 | 60 | 266 | 10 | 2 - 25 | |
| Other information | other 51 | 340 | 42,917 | 280 | i 41,878 | i 270 | i 41,746 i | 10 | 131 | 0 | 0 | |
| Finance and insurance | 52 | 220 | 8,917 | 190 | 8,136 | 190 | 8,136 | 0 | 0 | 0 | 0 | |
| Real estate and rental and leasing | 53 | 50 | 1,371 | 20 | 1,216 | 20 | 1,216 | 0 | 0 | 0 | 0 | |
| Lessors of nonfinancial intangible assets (except copyrighted works) | 533 | 20 | 45 | 10 | i 7 | 10 | i 7 | 0 | 0 | 0 | 0 | |
| Other real estate and rental and leasing | other 53 | 30 | 1,326 | 10 | 1,209 | 10 | 1,209 | 0 | 0 | 0 | 0 | |
| Professional, scientific, and technical services | 54 | 6,500 | 53,233 | 4,380 | i 22,977 | 3,830 | i 17,344 | 800 i | 5,633 | 560 i | i 2,064 | |
| Architectural, engineering, and related services | 5413 | 1,450 | 4,207 | 500 | i 732 | i 350 | i 253 | 190 i | 479 i | 160 | i 369 | |
| Computer systems design and related services | 5415 | 3,020 | 21,046 | 2,890 | i 15,302 | 2,760 | i 13,193 | 220 i | 2,109 | 110 i | i 293 | |
| Scientific research and development services | 5417 | 1,230 | 21,669 | 520 | i 3,206 | i 300 | i 478 | 330 i | 2,729 i | 260 | i 1,259 | |
| Research and development in biotechnology | 541711 | 310 | 6,457 | 50 | i 76 | 40 | i 44 | 40 i | 32 i | 30 | 11 | |
| Research and development in the physical, engineering, and life sciences (except biotechnology) | 541712 | 900 | 14,446 | i 460 | i 3,091 | i 270 | i 430 | 290 i | 2,661 i | 230 i | i 1,213 | |
| Research and development in the social sciences and humanities | 541720 | 30 | 766 | 10 | 39 | 10 | 3 | 10 | 36 | 10 | 35 | |
| Other professional, scientific, and technical services | other 54 | 810 | 6,312 | 490 | i 3,736 | i 440 | i 3,420 i | 70 | 316 | 40 | 143 | |
| Health care services | 621-23 | 680 | 2,265 | 30 | 234 | i 30 | 234 i | 10 | * | 0 | 0 | |
| Other nonmanufacturing | 23, 44-45 (excluding 454111- 12), 55-56, 624, 71- 72, 81 | 680 | 1,380 - 14,067 | 210 | i 0 - 14,067 | 210 | i 0- 14,012 | 10 | 0 - 58 | 10 | 0 - 19 | |
| All companies (number of domestic employees) | _ | 28,270 | 492,956 | 12,450 | i 200,859 | 11,640 | i 189,553 | 1,440 i | 11,306 | 710 i | i 5,089 | |
| Small companies | | | | | | | | | | | | |
| 10−19 ^c | _ | 5,490 | 5,501 | 2,520 | i 1,437 | i 2,330 | i 1,123 i | 390 i | 314 i | 260 i | i 189 | |
| 20–49 | _ | 7,980 | 12,418 | 4,000 | i 4,630 | 3,650 | i 3,930 | 510 i | 700 | 240 i | i 274 | |
| Medium companies | | , | , - | ,,,,,, | , | , | ,, | | | | | |

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(Millions of U.S. dollars and number)

| | | | | Software products and embedded software R&D | | | | | | | | |
|---------------------------|------------|--------------------|---------|---|-------------|-------------|----------|------------------------|------------------|------------------------|---------|--|
| | | | | | | | | Paid for by others | | | | |
| | | Domestic R&D Total | | | Paid for by | the company | Total | | Federally funded | | | |
| | | Companiesa | | Companies |) | Companiesb | | Companies ^b | | Companies ^b | | |
| Industry and company size | NAICS code | (number) | Amount | (number) | Amount | (number) | Amount | (number) | Amount | (number) | Amount | |
| 50-99 | _ | 4,960 | 14,021 | 2,060 i | 3,716 | 1,960 i | 3,107 | 160 | 609 | 80 | 296 | |
| 100-249 | _ | 4,580 | 19,793 | 1,720 i | 5,963 | 1,640 i | 5,127 | 170 i | 835 | 70 i | 425 | |
| Large companies | | | | | | | | | | | | |
| 250-499 | - | 2,140 | 18,883 | 780 | 6,633 | 730 | 5,632 | 90 | 1,001 i | 30 | 327 | |
| 500-999 | _ | 1,230 | 23,969 | 510 | 8,157 | 500 | 7,714 | 40 | 443 | 20 i | 64 i | |
| 1,000-4,999 | _ | 1,330 | 75,671 | 590 | 31,404 | 580 | 30,165 | 50 | 1,239 | 20 | 504 | |
| 5,000-9,999 | - | 240 | 50,811 | 120 | 15,174 | 120 | 14,470 i | 30 | 704 i | 10 | 140 | |
| 10,000-24,999 | _ | 220 | 88,263 | 120 | 29,212 | 110 | 26,829 i | 20 | 2,383 | 10 | 290 i | |
| 25,000 or more | - | 130 | 183,626 | 80 | 94,534 | 80 | 91,455 i | 20 | 3,079 i | 10 | 2,579 i | |

^{* =} amount < \$500,000; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. This change has affected the comparability of these estimates with estimates published for years prior to 2018. Companies could report R&D in one, more than one, or no application area. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

Source(s)

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2019.

^a Beginning in survey year 2018, these statistics include an adjustment to the weight to account for unit nonresponse; beginning in survey year 2019, these company count estimates reflect a change in rounding methodology.

^b Beginning in survey year 2018, these statistics include an adjustment to the weight to account for unit nonresponse; beginning in survey year 2019, these company count estimates reflect a change in rounding methodology. These company count estimates also reflect an imputation process implemented for survey year 2014. This change has affected the comparability of these company count estimates with estimates published for years prior to 2014.

^c The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.